TEMP-COOL®
PORTABLE COOLING SYSTEMS

TEMP-AIR
Portable Water-Cooled Spot Cooler

ENGINEERING, INSTALLATION AND SERVICE MANUAL

PWC60

PWC12

R410A Models

c UL us

TEMP-COOL®
PORTABLE COOLING SYSTEMS

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FORWARD

This manual provides the user with basic details for the installation and operation of the TEMP-AIR spot cooler. It is recommended to read and fully understand the instructions outlined within this manual, before operating the TEMP-AIR unit.

As with all commercial air conditioning equipment, it is recommended to have the TEMP-AIR unit sized and installed by a licensed specifying engineer and contractor, in accordance with all local and state codes. The length of service received can be extended by following the installation and preventive maintenance instructions.

NOTICE

In our ongoing process of continuous improvement, the items and procedures described in this manual are subject to change without notice. Please note model and serial number of the TEMP-AIR unit when contacting the factory.

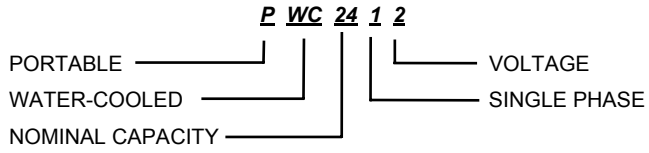
GENERAL DESCRIPTION

The TEMP-AIR portable water-cooled air conditioner is designed for permanent or temporary spot cooling applications. The entire air conditioning unit has been built in an attractive sheet metal cabinet, equipped with heavy-duty casters for mobility. All TEMP-AIR models come with a 10-foot power cord for electrical connection and added mobility in service. These spot-coolers are designed to direct air to specific areas or objects through a discharge grill located on the upper-front of the unit, while rejecting heat from the top of the unit. The TEMP-AIR water-cooled models range in cooling capacities from 12,000 BTU/HR to 60,050 BTU/HR to satisfy most space cooling requirements.

The TEMP-AIR spot cooler is a self-contained unit with the entire cooling system, fan motors and electrical components neatly arranged in a gray polyester powder coated metal cabinet. When connected to the proper source of electrical power, a 24-volt thermostat controls the TEMP-AIR unit to provide the desired level of comfort and cooling.

A wide variety of accessories and factory installed options are available for the TEMP-AIR units allowing for improved performance and versatility.

NOMENCLATURE



CAPACITY RATING

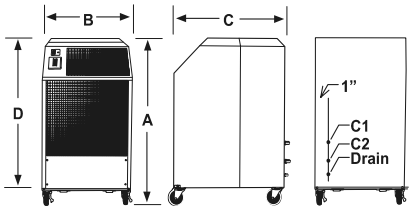
NOMINAL CAPACITY	12.....12,000 BTU/HR
	18.....18,000 BTU/HR
	24.....24,00 BTU/HR
	36.....36,000 BTU/HR
	60……...60,000 BTU/HR

WARRANTY CARD

It is important that the warranty card be filled out completely and returned to the factory within fourteen (14) days of installation of the unit in order to receive the benefits of the warranty.

Water-Cooled Portable Air Conditioners — SPECIFICATIONS

MODEL: PWC	1211	1811	2412	3612	3632	3634	6012	6032	6034
Nominal Cooling Capacity [1]	12,000	18,000	23,950	36,100	36,100	36,100	60,100	60,100	60,100
Voltage (Volts/Phase) at 60Hz	115/1		208-230/1		208-230/3	460/3	208-230/1	208-230/3	460/3
Unit Amps [5]	8.1	11.3	9.9	12.0	9.3	4.7	23.7	16.5	6.3
Unit Watts [5]	930	1300	2100	2700	2700	2700	5000	5000	5000
In Rush Current (Amps) [6]	70	90	86.5	99.5	88	88	160	140	140
Plug Type	5-15P	5-15P	6-20P	6-20P	L15-20P	L16-20P	6-30P	L15-30P	L16-20P
EER	12.9	13.8	11.4	13.4	13.4	13.4	12.0	12.0	12.0
Compressor HP	1	1 1/2	2	3	3	3	5	5	5
Compressor RLA	9.5	12.3	10.5	13.6	8.8	5.0	27.6	181	9.0
Compressor LRA	50	63	48	83	77	35	158	137	62
Evap CFM [2]	400	600	810	1310	1310	1310	1950	1950	1950
Evap Motor HP	1/15	1/8	1/3	1/3	1/3	1/3	1	1	1
Evap Motor Watts	200	210	350	375	375	375	550	550	550
Dimension E (in.)	18	21 1/2		29 1/2			32 3/4		
Dimension F (in.)	5 1/2	6		6			6		
Dimension G (in.)	3 1/2	4 1/2		4 1/2			4 1/2		
Cond Water Flow (GPM) at 60°F inlet	0.75	1.1	1.55	2.2	2.2	2.2	5.5	5.5	5.5
at 85°F inlet	3	4.5	6	9	9	9	15	15	15
Cond Coil Pressure Drop-PSI	0.4	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.4
Water Valve Pressure Drop PSI	2.0								
Water Valve Connection [4]	3/8 MF			5/8 MF					
Drain (Return) Connection	3/8 MF			5/8 MF					
Condensate Pump (ALL UNITS)	20 Ft Lift - 3/8 MF Connection On Unit - DRAIN								
Sound Level [3]	52	57	60	62	62	62	69	69	69
R-410A Charge Oz.	14	18	16	24	24	24	52	52	52
(A) Height with Casters (in.)	31 1/2	37 1/2		51			52 1/2		
(D) Height Without Casters (in.)	28 1/2	34 1/2		45			46 1/2		
(B) Width (in.)	20 1/8	24 1/4		28 1/4					
(C) Depth (in.)	13 1/8	13		16			39		
Net Weight (lb.)	110	150	160	240		270	460		520
Shipping Weight (lb.)	130	170	180	270		300	500		560
Shipping Volume (cu.ft.)	9	12		23			46		



WATER CONNECTIONS
For Model 12, C1 = WATER OUT, C2 = WATER IN
For Models 18, 24, 36 & 60, C1 = WATER IN, C2 = WATER OUT

Specifications subject to change without notice

1. Nominal capacity is total BTUH at 80ºDB/67ºWB return air, high fan speed, with 85ºEWT to 95ºLWT (3 GPM per Ton)
2. CFM with free discharge
3. Sound Pressure, dB at 5 feet, commercial operation
4. 3/8" water valve on models 12, 18, 24 (with 3/8" flare fitting), 3/4" water valve on models 36, 60 (with 5/8" flare fitting)
5. Amps and Watts at 208 Volts
6. Time delay fuses/circuit breakers are recommended

Ambient operating range 65º to 105º
May operate to 55º if equipped with optional hot gas bypass (factory installed)

50 Hz MODELS AVAILABLE - CONSULT FACTORY

STANDARD FEATURES

CABINET

The unit's cabinet is constructed of 18 gauge steel with a gray polyester powder coated finish that will compliment any decor. The entire cabinet is insulated with a sound-absorbing insulation for cool, quiet comfort. All units come equipped with handles and swivel casters for portability and convenient set-up.

ELECTRONIC THERMOSTAT

All units are equipped with a non-programmable electronic thermostat. When power is connected to the unit, the thermostat will control the unit to cool a space to the desired temperature. The thermostat is also capable of controlling the fan to operate automatically (when needed) or continuously. To protect the compressor from short-cycling, there is a built-in, 4-minute time delay in the thermostat.

FAN SPEED CONTROL

A two position rocker switch, located next to the thermostat, provides the user with the option of running the evaporator fan in high-speed or low-speed.

CONDENSATE PUMP

All units come equipped with an Automatic Condensate Pump that disposes of the condensate. The pump discharges through a 3/8 male falre connection located on the back of the unit. The automatic pump is capable of a 20ft lift, to handle just about any installation requirement.

CONDENSATE ALARM LIGHT

On the front of all water-cooled models, there is a Condensate Alarm Light (RED) located near the thermostat. For models less than 5-tons, the light indicates that the condensate tank is full and needs to be emptied. In the 5-ton units (model PAC60) the light indicates a condensate pump over-flow condition where the pump is either disabled, or incapable of rejecting the condensate water, and must be serviced.

FILTERS

All water-cooled units are equipped with washable filters at the air intakes. 1/8” mesh air filters located behind the evaporator return air grill serve to filter the air before it is cooled. The filters can be easily removed and cleaned.

HIGH PRESSURE SAFETY SWITCH

Located on the back of the unit is a manual re-set high pressure switch, used for the protection of the compressor in the event that the condenser water supply is turned off. If the condensing pressure exceeds the limit setting, the cut-out shuts down the compressor, while the evaporator fan remains running. The compressor can be re-started, once the condensing pressure has lowered, by depressing the “RESET” button.

POWER CORDS

All TEMP-AIR portable water-cooled units come with power cords, convenient connection and portability. All units except the 5-ton models, and 3-phase models are equipped with LCDI for added safety devices.

APPLICATIONS

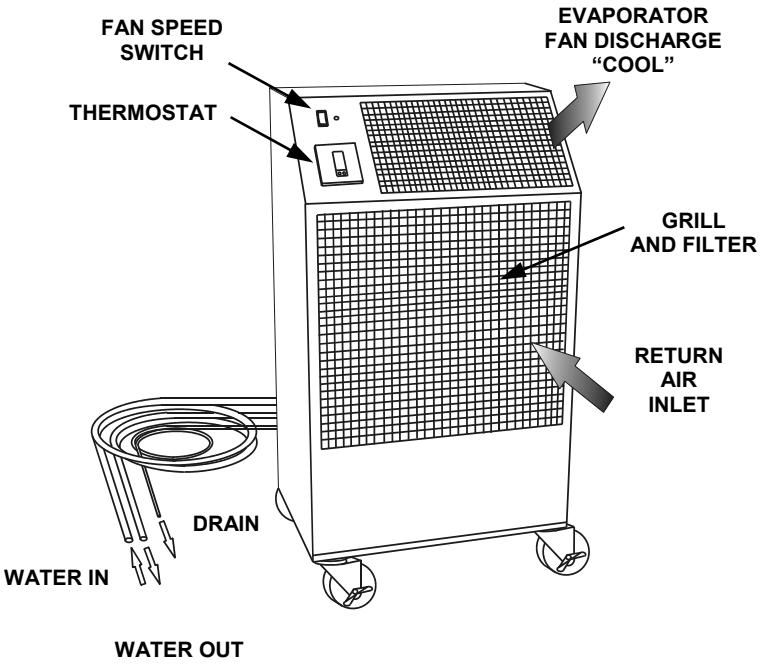
SPOT COOLER

This series can be used in an open environment to cool specific objects or "spots". Spot Cooling is a convenient and economical way to provide air conditioning where cooling the entire space is impractical. Cool air is discharged from the unit and is directed where it is needed. Nozzle kits can be used to improve direction of the cooling airflow.

ROOM AIR CONDITIONER

One feature of the water-cooled model is it operates as a room air conditioner because water is used as the means for heat rejection. The major convenience of water-cooled air conditioning is the convenience of connecting water hoses or lines as compared to the installation of condenser air ducts used for air-cooled portables. A variety of hose kits are available that can be used for connecting to a water supply and drain while providing portability within the conditioned space.

OPERATION / DESCRIPTION



FRONT VIEW

SERVICE CORD

All TEMP-AIR water-cooled series units are equipped with the standard ten foot long service cord with plug configurations and receptacle requirements as shown in this chart. PWC1011, PWC1211, PWC1811, PWC2412 and PWC3612 units come with **LCDI** (Leakage Current Detection & Interruption) devices that serve as a means of electrical protection.

CAUTION—DO NOT USE THE LCDI AS AN ON/OFF SWITCH FOR THE UNIT

All 3-phase models are equipped with locking plugs for added connection reliability. Refer to the chart below for plug and receptacle details for all series models.

A DAMAGED LCDI POWER SUPPLY CORD MUST BE REPLACED WITH A NEW POWER SUPPLY CORD OBTAINED FROM TEMP-AIR AND NOT REPAIRED

UNIT/MODEL	PLUG CONFIGURATION	RECEPTACLE
115 VOLT PWC1211 PWC1811	15A-125 VOLT NEMA 5-15P	NEMA-5-15R
208-230 VOLT SINGLE PHASE PWC2412 PWC3612	20A-250 VOLT NEMA 6-20P	NEMA 6-20R
208-230 VOLT SINGLE PHASE PWC6012	30A-250 VOLT NEMA 6-30P	NEMA 6-50R
208-230 VOLT 3-PHASE PWC3632	20A-250 VOLT NEMA L15-20P	NEMA L15-20R
208-230 VOLT 3-PHASE PWC6032	30A-250 VOLT NEMA L15-30P	NEMA L15-30R
460 VOLT 3-PHASE PWC3634 PWC6034	20A-460 VOLT NEMA L16-20P	NEMA L16-20R

USE OF EXTENSION CORDS

CAUTION:

FOR MODEL PWC1211 AND PWC1811 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 15 AMPS @ 115 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODELS PWC2412 AND PWC3612 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 250 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PWC6012 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 30 AMPS @ 250 VOLTS WITH GROUNDING-TYPE ATTACHMENT PLUG AND GROUNDING TYPE CONNECTOR (LOAD FITTING)*

FOR MODEL PWC3632 *AN EXTENSION CORD MAY BEUSED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 250 VOLTS, 3 PHASE*

FOR MODEL PWC6032 *AN EXTENSION CORD MAY BEUSED PROVIDED IT IS RATED AT LEAST 30 AMPS @ 250 VOLTS, 3 PHASE*

FOR MODELS PWC3634 AND PWC6034 *AN EXTENSION CORD CAN BE USED PROVIDED IT IS RATED AT LEAST 20 AMPS @ 600 VOLTS, 3 PHASE*

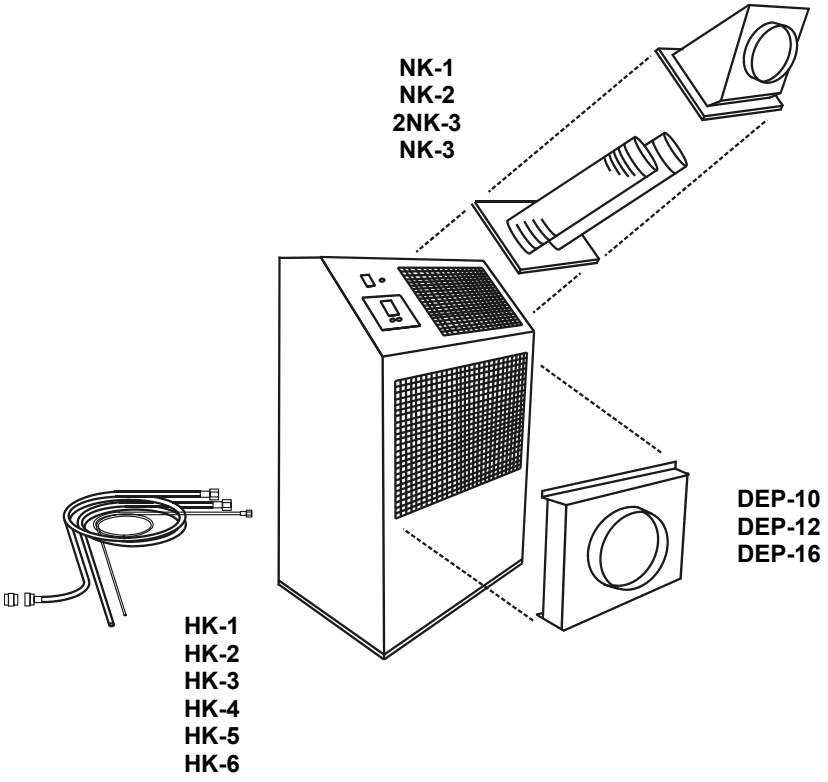
SPECIAL NOTICE—THREE PHASE OPERATION

Models PWC3632, PWC3634, PWC6032 and PWC6034

All three-phase AQUACOOLER models are equipped with a three-phase monitor for added compressor protection. The phase monitor, located in the control box, has multi-color LED that reports status. The monitor protects the compressor from reverse operation, phase loss and low voltage situations. Further description of the three-phase monitor is located in the electrical section of the manual.

NOTICE - DO NOT OPERATE ANY THREE-PHASE UNIT BY BY-PASSING THE MONITOR, THIS WILL VOID THE WARRANTY

ACCESSORIES



WATER-COOLED UNIT

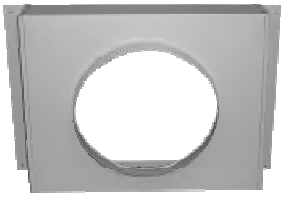
ACCESSORIES

NOZZLE KIT

NK-1	(2 X 4-Inch)	PWC12
NK-2	(2 X 6-Inch)	PWC18, 24
2NK-3	(2 x 8-iNCH)	PWC36
NK-3	(2 X 8-Inch)	PWC60

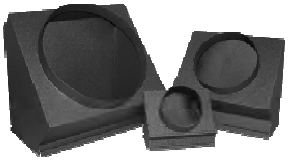
EVAPORATOR RETURN AIR PLENUM

DEP-10	(10-Inch Round)	PWC12
DEP-12	(12-Inch Round)	PWC18, 24
DEP-16	(16-Inch Round)	PWC36, 60



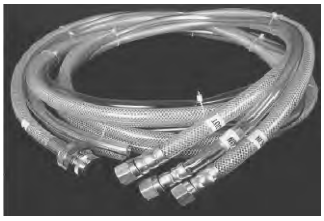
DISCHARGE DUCT ADAPTER

DDA-6	(6-Inch Round)	PWC12
DDA-10	(10-Inch Round)	PWC18, 24,
2DDA-16	(12-inch Round)	PWC36
DDA-16	(16-Inch Round)	PWC60



HOSE KIT

HK-1	10FT	PWC 12, 18, 24
HK-2	25FT	PWC 12, 18, 24
HK-5	40FT	PWC 12, 18, 24
HK-3	10FT	PWC 36, 60
HK-4	25FT	PWC 36, 60
HK-6	40FT	PWC 36, 60



ACCESSORIES

DISCHARGE AIR NOZZLE KIT ASSEMBLY (NK, 2NK)

The optional discharge nozzle kits are used to direct the conditioned air to a specific target area. By concentrating the airflow, the nozzles increase the air velocity towards production lines to cool personnel or equipment. In server rooms, the nozzles can be used to induce airflow through the rack to remove the hot air from the area of the equipment.

NK-1 for model PWC12, with (2) 4-inch diameter nozzles with an approximate compressed length of 15 inches. The approximate extended length is 21 inches.

NK-2 for models PWC18, PWC24 with (2) 6-inch diameter nozzles with an approximate compressed length of 22 inches. The approximate extended length is 32 inches.

2NK-3 for model PWC36 with (2) 8-inch diameter nozzles with an approximate compressed length of 20 inches. The approximate extended length is 29 inches.

NK-3 for model PWC60, with (2) 8-inch diameter nozzles with an approximate compressed length of 20 inches. The extended length is approximately 29 inches.

The nozzle kits come pre-assembles with the nozzles secured to a mounting plate, and with edge guards. By removing the unit's discharge grill, one can insert the nozzle kit into the opening without the use of tools.

Nozzle Kits

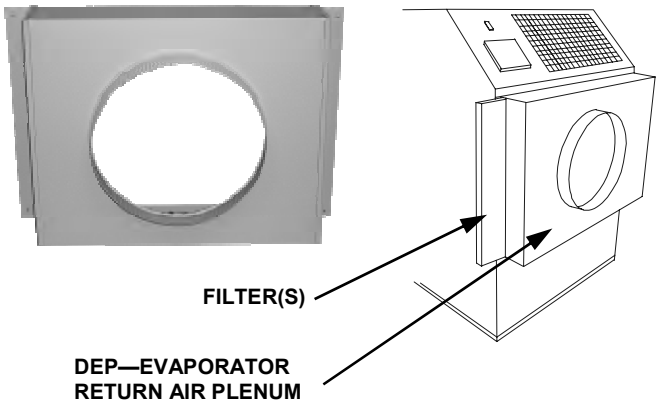
ACCESSORIES

EVAPORATOR RETURN AIR PLENUM, DEP

Evaporator return air plenums are available for installations where it is required to duct air to the inlet of the evaporator. The evaporator return air plenums allow the user to connect round duct (flexible or rigid) to the return air intake to reduce air noise and increase the number of options for solving difficult cooling problems. The plenum attaches to the front of the unit, replacing the return air grill. Refer to the table below for configuration and application information

DEP-10 for PWC12 transitions the return air opening to 10-inch round duct.
DEP-12 for PWC18 and PWC24 transitions the return opening to a 12-inch round duct.
DEP-16 for PWC36 and PWC60 transitions the return opening to a16 inch round duct.

NOTE—When a DEP is installed, it is recommended to set the evaporator blower speed to high, to avoid evaporator freeze-up.



Plenum Kit Duct/Flange	PWC12	PWC18	PWC24	PWC36	PWC60	FILTERS
DEP-10 10 inch	✓					(1) 10”X20”X1”
DEP-12 12 inch		✓	✓			(1) 15”X25”X1”
DEP-16 16 inch				✓	✓	(1) 12”X30”X1” (1)15”X30”X1”
Maximum Equivalent Feet	25	50	50	50	100	
Est. External Static Pressure	(.20)	(.25)	(.25)	(.25)	(.50)	

ACCESSORIES

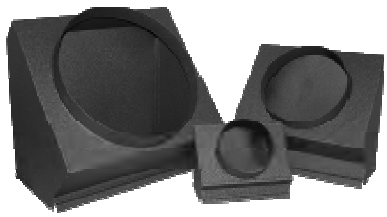
Discharge Duct Adapter, DDA, 2DDA

Discharge duct adapters are available for applications where ducted evaporator discharge is required. The adapters can be easily installed on the unit without fasteners, and be installed for either vertical or horizontal ducting. The standard discharge grille is removed and the DDA is attached in the grill opening.

DDA-6 for PWC12, converts the evaporator discharge to a 6-inch diameter round duct.
DDA-10 for PWC18 and PWC24 converts the evaporator discharge to a 10-inch diameter round duct.
2DDA-16 for PWC36 models, converts the evaporator discharge to a 16-inch diameter round duct.
DDA-16 FOR PWC60 models, converts the evaporator discharge to a 16-inch round duct.

When used in conjunction with the evaporator return air plenum, DEP, the unit can provide closed-loop cooling to and from a given space without the influence of any outside air.

NOTE—When a DDA is installed, it is recommended to set the evaporator blower speed to high, to avoid evaporator freeze-up.



Adapter Model	Round Duct Size	PWC12	PWC18	PWC24	PWC36	PWC60
DDA-6	6-inch	✓				
DDA-10	10-inch		✓	✓		
2DDA-16	16-inch				✓	
DDA-16	16-inch					✓
Maximum Approx Equivalent Feet		25	50	50	50	100
Maximum E.S.P		.15	.25	.25	.25	.50

ACCESSORIES

Hose Kit, HK

Hose kits are available in lengths of 10, 25, and 40 feet. Each hose kit allows for convenient installation of the unit, while allowing for portability within the allowable space.

NOTICE—When using these hoses in applications with water pressures exceeding 50 PSIG, a water pressure reducing valve must be installed in the water supply line prior to the hose kit; otherwise warranty on the hose kits will be void.

All hose kits have FEMALE flare connectors to match the MALE flare fittings on the units (see chart below). The WATER IN connector consists of a 3/4" hose barb. WATER OUT and DRAIN (condensate) have no fitting, and can be fed to a sink or permanent drain. When using a hose kit, avoid sharp corners, hot water pipes and kinking to assure proper water flow of the supply and return lines.

Included with the hose kit is a sink/faucet adapter

Hose Kit	Length	Flare Conn IN-OUT-DRAIN	PWC12	PWC18	PWC24	PWC36	PWC60
HK-1	10 ft	3/8 3/8 3/8	✓	✓	✓		
HK-2	25 ft	3/8 3/8 3/8	✓	✓	✓		
HK-5	40 ft	3/8 3/8 3/8	✓	✓	✓		
HK-3	10 ft	5/8 5/8 3/8				✓	✓
HK-4	25 ft	5/8 5/8 3/8				✓	✓
HK-6	40 ft	5/8 5/8 3/8				✓	✓

Hose Kit

OPTIONS

In some applications, units can be manufactured with optional components for added performance and longevity. Below are a few of the options that are available for units.

Consult your distributor for pricing and availability.

TOWER UNITS

In applications where the unit is connected to a closed-loop condenser water circuit, a unit can be built for direct water connection without a water valve.

HIGH PRESSURE WATER VALVE

For applications where water supply pressures exceed 150 psig, a high pressure water regulating valve can be installed in the unit. Valves designed for use with up to 350 psig water inlet pressure, are available.

CUPRO-NICKEL CONDENSER

When chemically treated water, salt water or brine is used in the condenser coil, it is recommended that the unit be equipped with a 90/10 Cupro-Nickel condenser coil.

ACRYLIC TREATED EVAPORATOR COIL

When airborne contaminants are a problem for air conditioning applications, acrylic coated evaporator coils are recommended to guard against pitting or corroding.

HERESITE TREATED EVAPORATOR COIL

For use in chemically corrosive environments, the unit can be manufactured with a Heresite® coated evaporator coil for improved coil life.

HOT GAS BYPASS VALVE

In applications where low evaporator temperatures may occur, an optional hot gas bypass valve can be installed to regulate the evaporator temperature. The bypass valve feeds refrigerant (hot gas) into the evaporator to avoid freeze-ups.

INSTALLATION INSTRUCTIONS

RECEIVING—INSPECTION:

Upon receiving your water-cooled unit, inspect the packaging for any damage. All units are shipped on a skid, and packaged in a triple-wall carton for added protection. In shipment, some wear may occur on the packaging. If the packaging is heavily damaged or broken, file a claim with the freight company immediately. Carefully unpack the unit and remove all wrapping materials. Save all documentation and fill out the Warranty Card and mail it to TEMP-AIR.

BEFORE INSTALLING

Check the air conditioner/spot cooler for any damage. All TEMP-AIR products are thoroughly inspected at the factory and carefully packaged. If any damage is evident, file a claim with the delivering carrier immediately.

ELECTRICAL REQUIREMENTS

Check the nameplate located on the back of the unit to make certain that the proper power is available for the unit. Refer to "Specifications" section for voltage and amperage requirements. For proper NEMA receptacles, refer to "Electrical service plug configuration". When using extension cords, use the properly sized cord as specified, and check cord voltage to the unit.

TIME DELAY FUSES/CIRCUIT BREAKERS ARE RECOMMENDED

WARNING—OPERATING THE UNIT ON IMPROPER VOLTAGE WILL VOID THE WARRANTY

ACCESSORIES

Verify that all accessories are correct for the model, and that they installed in accordance with all instructions.

START-UP

Install the unit in accordance with all local and state building codes, and install all accessories. Allow for a clearance around the unit for future maintenance and/or service. Level unit and lock casters, when available. Connect power and test the LCDI on the power cord (if available). Power up unit, via thermostat and check for proper operation. Refer to Thermostat Operation for more details.

THERMOSTAT OPERATION

FAN

When the power is connected, the LCD screen on the thermostat will illuminate. Pressing the FAN button once, will turn on the evaporator fan blower. To turn the blower off, push the FAN button once again.

COOLING MODE ✳

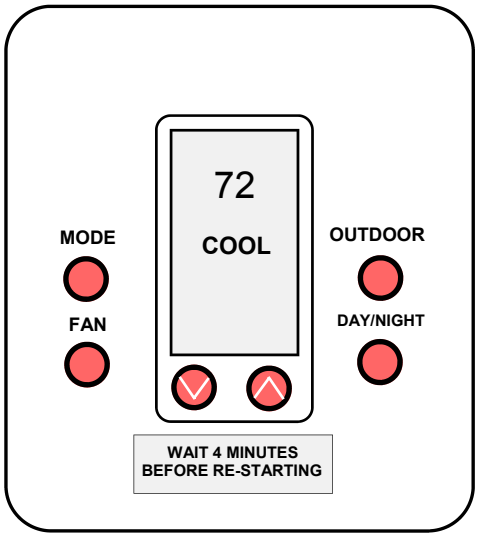
To operate unit for cooling, push MODE button to display COOL in the window.

Push down arrow button multiple times to lower set point to desired temperature.

The display will show the set-point temperature for 5 seconds, then it will return to room temperature display.

After a slight pause, the fan motor and compressor will start, beginning the cooling cycle.

Remember, the set-point must be lower than the room temperature for the unit to start.



The OUTDOOR and DAY/NIGHT buttons are not used and do not effect unit operation.

This is a cooling only thermostat. Select the temperature you want by pressing the ▲ or ▼ buttons. The word COOL and the temperature set-point is displayed for 5 seconds.

To change display to Celsius, simultaneously press the ▲ and ▼ buttons. Press them again to change back to Fahrenheit.

No batteries are required. In the event of a power failure, when the power is restored the thermostat will continue operating as if the power had never been off.

Compressor short cycle protection is built-in to the thermostat. A 4-minute time delay will protect the unit.

WATER VALVE ADJUSTMENT

All water-cooled units come equipped with automatic pressure regulated water valves, that control the condenser water flow rate. The water valves will open when the system is running and will adjust the water flow rate as required by the air conditioning system.

In some cases, water temperatures can cause the valve to open and close at a high rate, causing a "chattering" condition in the water supply line. In these cases, it is recommended that the water valve be adjusted.

1. Disconnect the unit power.
2. Remove the unit back panel and locate the water regulating valve in the lower right region of the unit.
3. Locate the water valve adjustment screw. At the top of the valve there is a square-shaped adjustment screw.
4. Turn the adjustment screw 1/4 turn, re-start the unit, and observe operation to see if the "chattering" goes away. Make 1/4 turn adjustments and observe the unit operation until the condition goes away.
5. Close up the unit and POWER

REPLACEMENT PROCEDURE FOR PARTS

IT IS RECOMMENDED THAT ALL TEMP-AIR UNITS BE SERVICED BY A LICENSED TECHNICIAN

WARNING—TO AVOID INJURY, DISCONNECT UNIT POWER PRIOR TO SERVICING

A. FAN MOTORS

1. Remove cabinet's left-side panel (when looking at the front of the unit).
2. Evaporator fan motor—disconnect evaporator motor wires from evaporator fan contactor and fan speed rocker switch. Condenser fan motor—disconnect condenser motor wires from condenser fan contactor.
3. ***For all model sizes 12, 18 and 36***, remove the screws securing motors and inlet-ring to blower housings (all screws are external and visible), and remove blower wheel-motor assembly. Remove the blower wheel set screw and disassemble the blower wheel from the motor shaft and remove the motor.
   For models size 60—loosen blower wheel shaft set screw, and remove the screws securing the motor mount to the blower housing and remove motor and mount. Remove the motor from the motor mount.
4. Install the new motor, reversing the removal procedure.

B. THERMOSTAT (NO BATTERIES REQUIRED)

1. Pull up from the bottom of the thermostat to remove it from the mounting sub-base, by gently prying up on the face plate in the slot at the base of the thermostat. Make sure small thermistor located in the bottom of the thermostat for temperature sensing, is not bent or damaged.
2. To remove the thermostat sub-base, remove the 2 mounting screws and the 3 wires (red/yellow/green or red/white black). Make sure the 3 wires do not fall into the cabinet. Install sub-base by reversing removal procedure.

C. TANK FULL LIGHT

To replace the Condensate Alarm Light on all models, disconnect the wires from the lamp and bend the tinnerman clip retaining light and pull out. Install new light, reversing the procedure.

D. CONDENSATE PUMP (ON ALL 5-TON UNITS OR ON UNITS WHERE THE CONDENSATE PUMP KIT HAS BEEN INSTALLED)

1. Open condensate bucket access door located on lower right side panel and locate the condensate pump.
2. Remove brackets securing condensate pump in base pan, or condensate tank tray pan
3. Disconnect pump wire leads at Molex connectors. Remove retainer clamp and tubing.
4. Replace pump, install by reversing procedure.

E. HIGH PRESSURE SAFETY SWITCH

1. Remove cabinets left hand side panel, or right rear side panel of Model 60.
2. Remove flare nut that secures capillary to the refrigeration system high pressure side. A Schrader valve is located in the discharge port, and allows removal without dumping the refrigerant charge.
3. Remove two screws that retain high pressure switch.
4. Disconnect wire leads from compressor contactor and condensate pump safety switch.
5. Install new High Pressure Control, reversing the procedure.

To gain access to compressor and compressor run capacitor, remove left hand side panel.

TROUBLESHOOTING GUIDE

The following steps and procedures are recommended for correcting the problems indicated. In the event that the problem can not be corrected, service may be required.

SERVICE SHOULD BE PERFORMED BY A QUALIFIED AIR CONDITIONING SERVICE TECHNICIAN

PROBLEM: UNIT DOES NOT POWER UP

CAUSE: Power interruption

REMEDY: Check LCDI (on models with LCDI), and reset LCDI. Check external power supply making sure that the disconnect is ON. Check for blown fuses or tripped circuit breakers. Reset or replace if needed.

PROBLEM: NO DISPLAY ON THERMOSTAT

CAUSE: Faulty thermostat or faulty transformer

REMEDY: Thermostat may be defective...remove and replace. Transformer may be defective...remove and replace.

PROBLEM: EVAPORATOR FAN RUNS BUT COMPRESSOR AND CONDENSER FAN DO NOT START

CAUSE: Thermostat — setting may be too high.
REMEDY: Make sure set-point is lower than room temperature. You should see a snowflake "✳" designating that the thermostat is calling for cooling.

Note—there is a 4 minute time delay for the compressor

CAUSE: Thermostat—Loose wiring
REMEDY: Examine the control unit for loose wires. Tighten any loose connections.

CAUSE: Condensate Alarm—Check for Condensate Alarm Light.
REMEDY: Check condensate tank and empty tank or check condensate pump and make sure pump is working properly and that there is no kink in the drain line from the pump.

CAUSE: High Pressure Cut-out—Check High Pressure Cut-out Switch. Press Reset and clear away any obstructions to the condenser intake or condenser discharge.

CAUSE: Low Voltage — Check power supply for voltage outside the range of 106-126 volts on the 115 Volt unit and 187-253 Volts on the 208/230 Volt unit.
REMEDY: Have power checked by electrician and repaired.

CAUSE: Compressor contactor open or burned.
REMEDY: Replace contactor

PREVENTIVE MAINTENANCE

TEMP-AIR Spot Coolers are designed to last a long time and to give maximum performance and reliability with minimum maintenance. To prolong the life of the unit, regular maintenance must be performed as specified below:

BLOWER MOTORS
The motors on all units have permanently lubricated bearings. No oiling is necessary

FILTERS
A clogged filter will cause the unit to operate at greatly reduced efficiencies. We recommend that the filter be inspected on a regular bases every six weeks or more often depending on the environment. The evaporator filter is located behind the return air grille and can be easily removed and cleaned. The filters must be washed periodically as needed by placing them in a dishwasher or soaking them in a solution of warm water and detergent for 10 minutes. Then rinsing them clean with hot water and shaking excess moisture from filter.

CONDENSATE PUMP
Condensate pumps come standard on all water-cooled models. When servicing pump follow these steps;

1. Make certain that the unit is disconnected from the power source before attempting to service or remove any component.

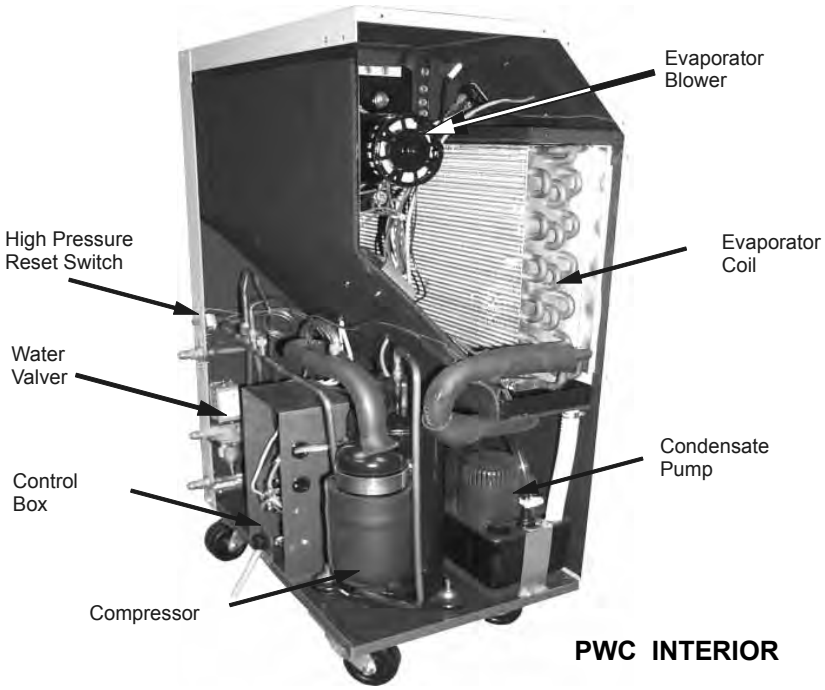
2. Be sure the floats move freely. Clean as necessary.

3. Remove the volute and check for obstructions. Clean as needed.

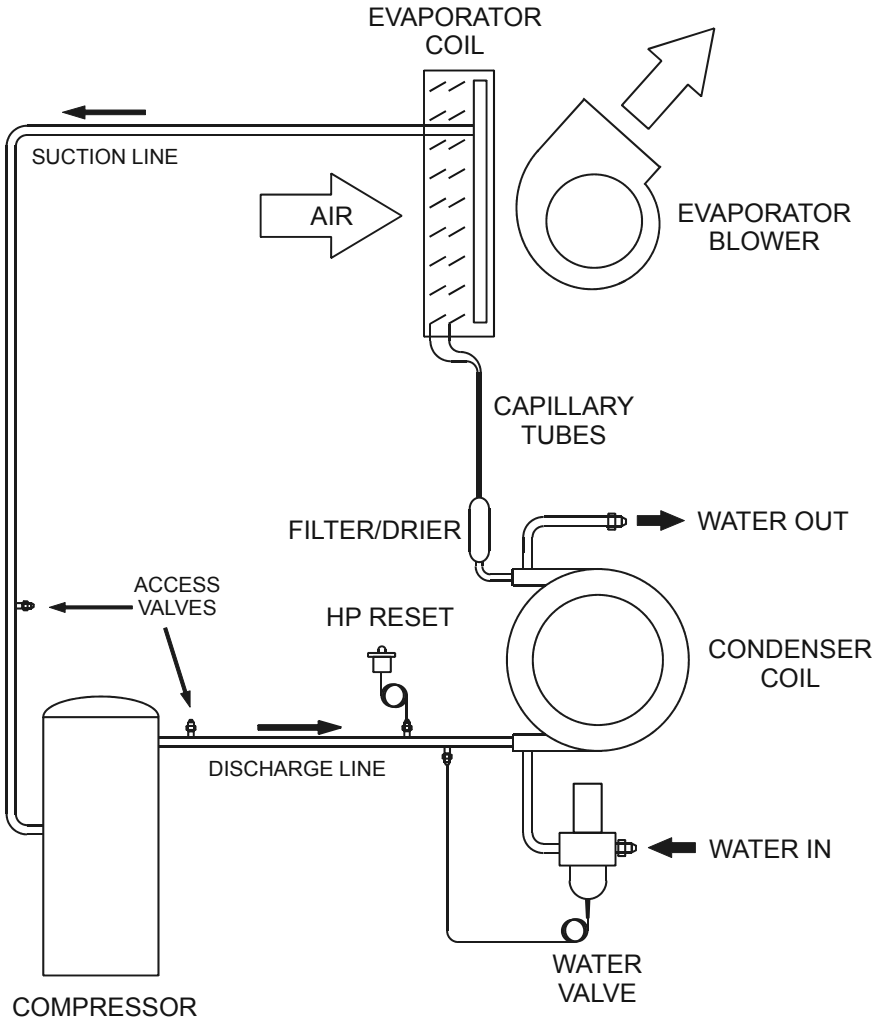
4. Clean the tank with warm water and mild soap when mineral deposits are visible.

5. Check the inlet and outlet piping. Clean as necessary. Be sure there are no kinks in the lines that would inhibit flow.

GENERAL
When necessary maintenance steps outlined above are followed, the air conditioner will provide long and reliable service. The refrigeration and electrical circuits of the system should only be serviced by a fully qualified service technician.



PWC INTERIOR



PIPING SCHEMATIC
Water-Cooled Spot Cooler

Three Phase Monitor

Three-Phase units can be equipped with monitors for compressor protection. The TEMP-AIR Three-phase Monitor safeguards the unit against incorrect compressor rotation, low-voltage and/or loss of power in any one of the power legs. The monitor is installed in the control box and is equipped with an LED for diagnosis of an improper electrical condition (see diagrams below). When power is connected, the compressor WILL NOT power up, until the monitor start delay has been timed out. If the compressor does not power up, an electrical condition may need to be addressed. Remove the control box cover and check the observe the LED on the phase monitor. The LED signals the following:

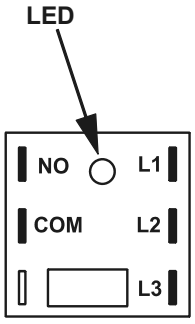
GREEN-BLINKING - Start delay, 120 sec.

GREEN - Proper Operation

RED/GREEN-BLINKING signals reverse phase rotation. Switch any two of the power leads for the unit, NOT THE MONITOR LEADS, and re-start.

RED-BLINKING signals improper voltage and/or phase loss. Correct the power problem, then re-start the unit.

In the event of a power interruption, the unit will re-set to a start-up condition. The Phase Monitor will not allow the compressor to start until power is corrected.



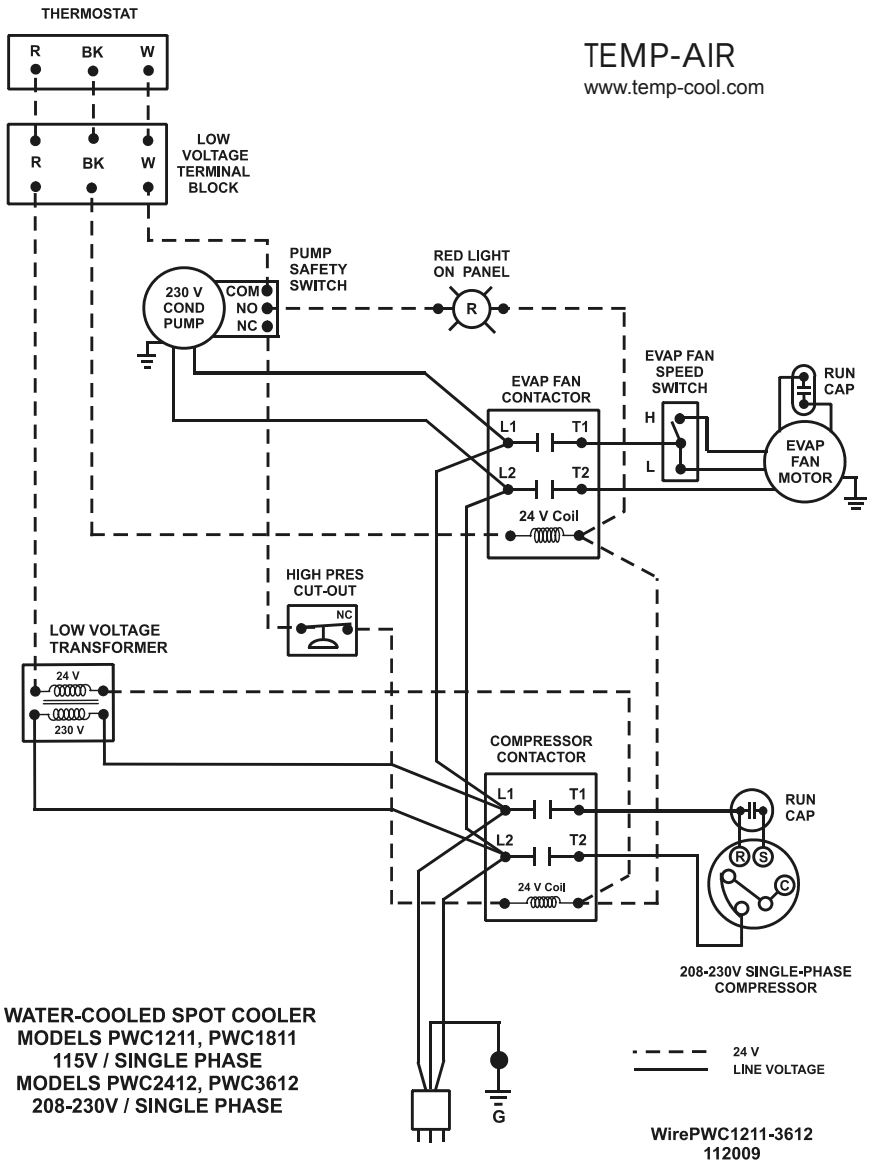
THREE-PHASE MONITOR
230V, 025-045
460V, 025-046

NOTICE
UNIT IS EQUIPPED WITH 3-PHASE POWER MONITOR (WITH LED)

LED INDICATION
GREEN (BLINKING) = START DELAY
GREEN = PROPER OPERATION
RED/GREEN/BLINKING = PHASE REVERSAL
RED (BLINKING) = IMPROPER LEG VOLTAGE OR PHASE LOSS

START DELAY = 120 SECONDS

CONTROL BOX LABEL


THERMOSTAT
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BK
W
TEMP-AIR
www.temp-cool.com
LOW VOLTAGE TERMINAL BLOCK
PUMP SAFETY SWITCH
230 V COND PUMP
COM
NO
NC
RED LIGHT ON PANEL
EVAP FAN SPEED SWITCH
RUN CAP
EVAP FAN CONTACTOR
L1
T1
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24 V Coil
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EVAP FAN MOTOR
HIGH PRES CUT-OUT
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24 V
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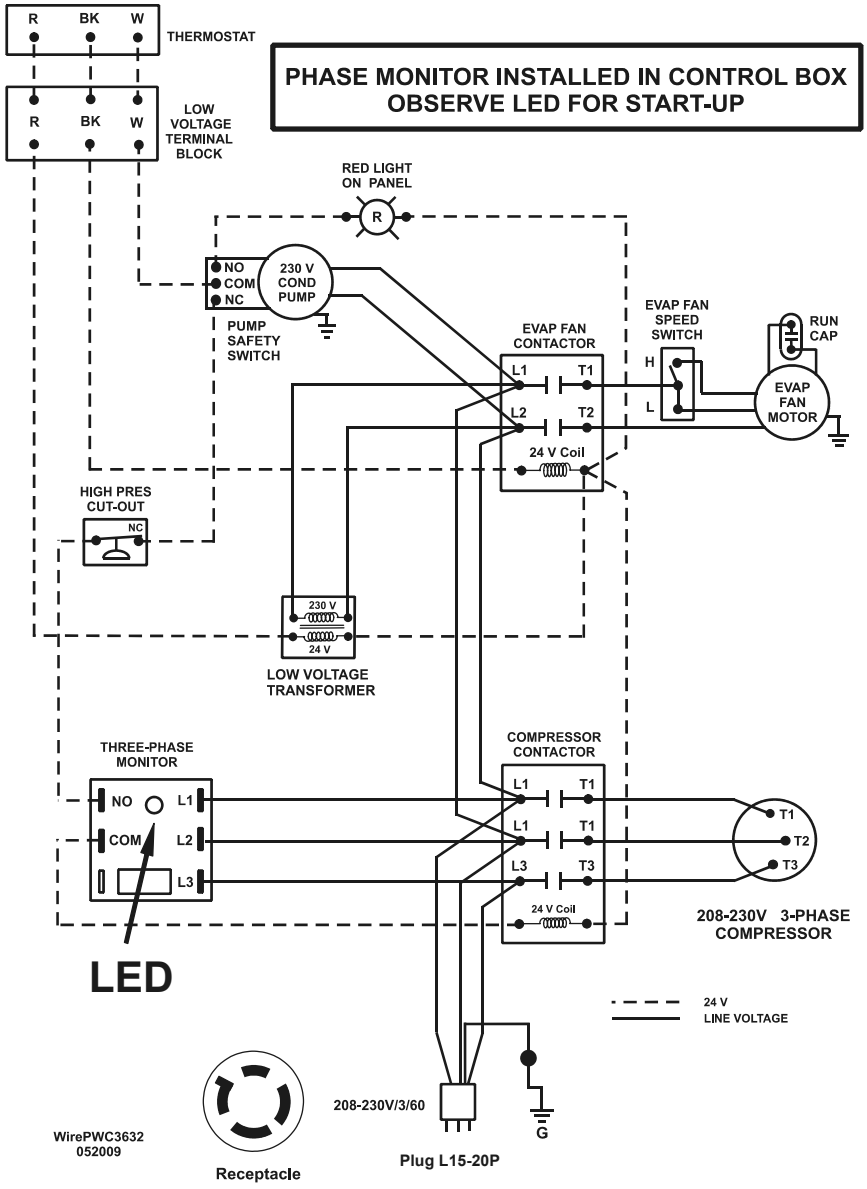
C
208-230V SINGLE-PHASE COMPRESSOR
G
24 V
LINE VOLTAGE
WATER-COOLED SPOT COOLER
MODELS PWC1211, PWC1811
115V / SINGLE PHASE
MODELS PWC2412, PWC3612
208-230V / SINGLE PHASE
WirePWC1211-3612
112009


PHASE MONITOR INSTALLED IN CONTROL BOX
OBSERVE LED FOR START-UP
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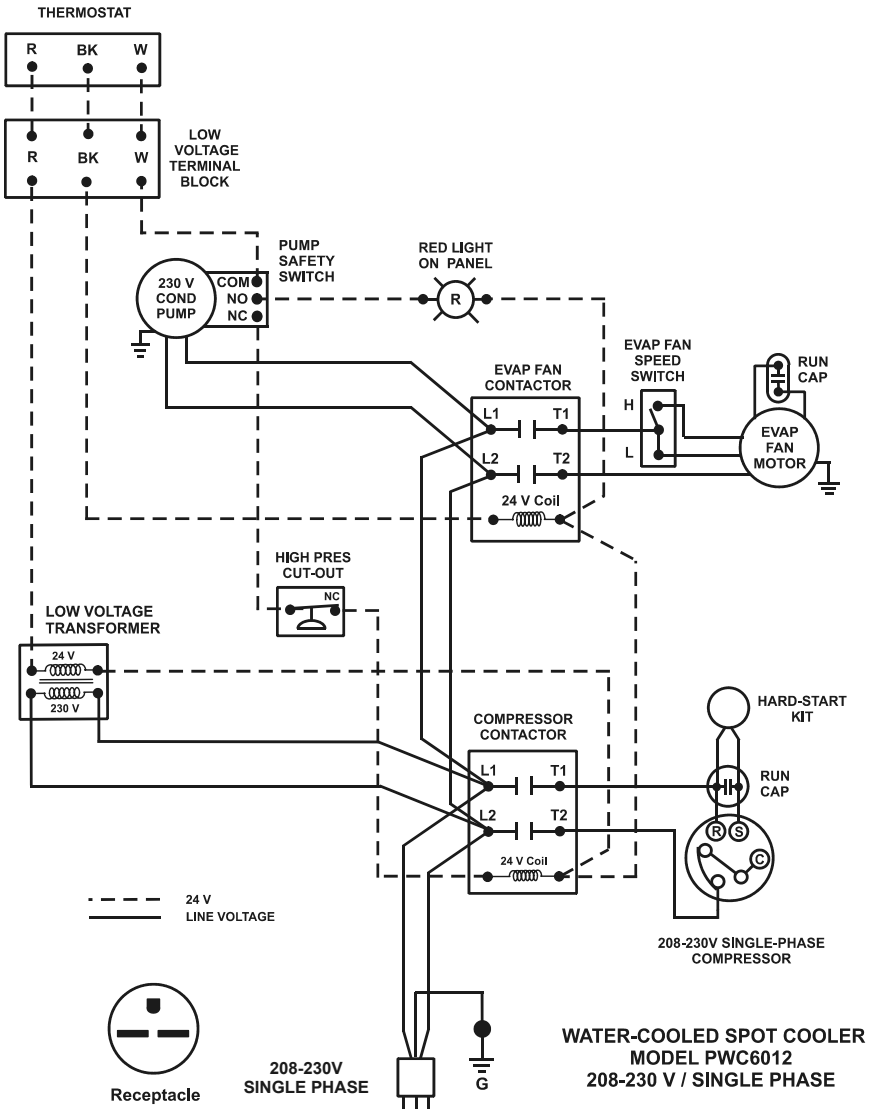
Receptacle
Plug L15-20P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LOW VOLTAGE TRANSFORMER
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208-230V SINGLE-PHASE COMPRESSOR
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208-230V SINGLE PHASE
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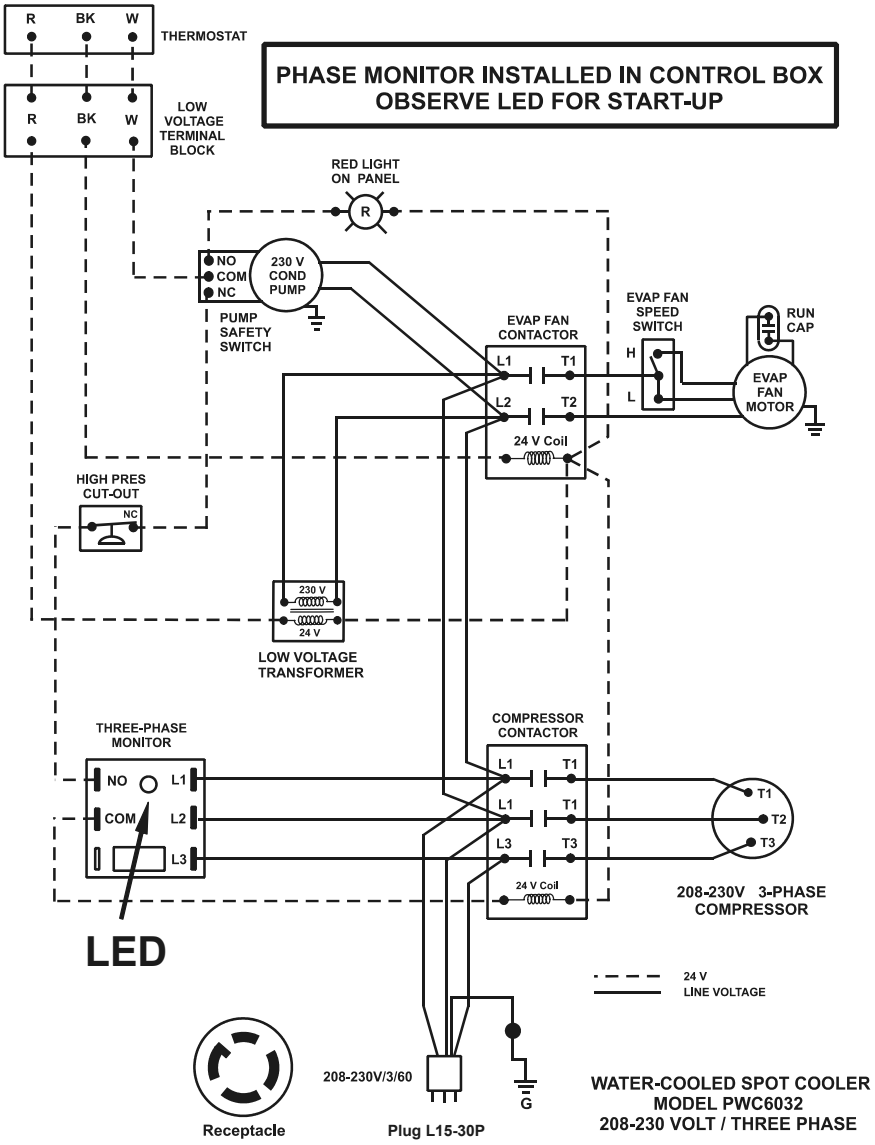
WATER-COOLED SPOT COOLER
MODEL PWC6012
208-230 V / SINGLE PHASE

Plug 5-30P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OBSERVE LED FOR START-UP
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THREE-PHASE MONITOR
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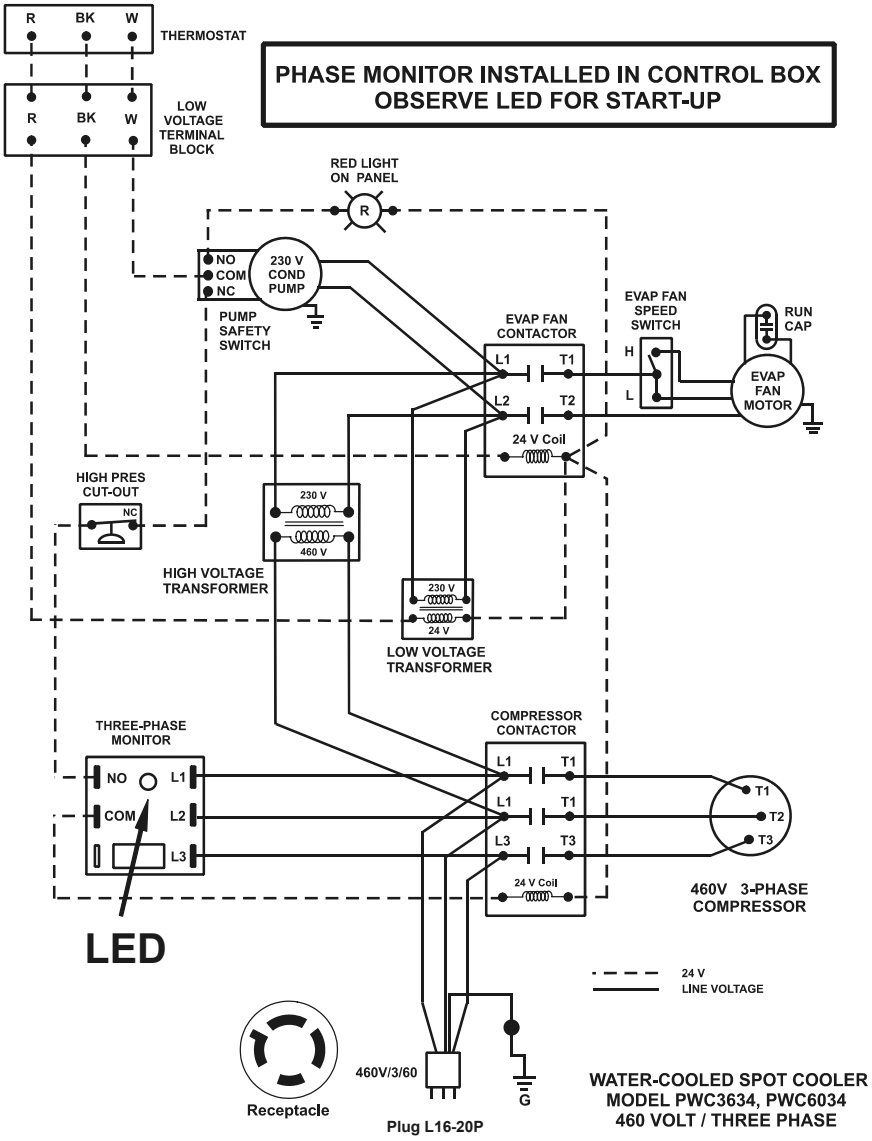
208-230V 3-PHASE COMPRESSOR
LED
24 V
LINE VOLTAGE
Receptacle
208-230V/3/60
Plug L15-30P
G
WATER-COOLED SPOT COOLER
MODEL PWC6032
208-230 VOLT / THREE PHASE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LOW VOLTAGE TERMINAL BLOCK
PHASE MONITOR INSTALLED IN CONTROL BOX
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460 V
HIGH VOLTAGE TRANSFORMER
230 V
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LOW VOLTAGE TRANSFORMER
THREE-PHASE MONITOR
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COMPRESSOR CONTACTOR
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460V 3-PHASE COMPRESSOR
LED
24 V
LINE VOLTAGE
Receptacle
460V/3/60
G
Plug L16-20P
WATER-COOLED SPOT COOLER
MODEL PWC3634, PWC6034
460 VOLT / THREE PHASE

USEFUL INFORMATION

MODEL: _____

SERIAL NUMBER: _____

DATE PURCHASED: _____

INSTALLED BY: _____

For Technical Support, contact TEMP-AIR at (800) 836-7432. Please indicate the Model Number and Serial Number of the unit to assure proper information and service parts.

3700 W Preserve Blvd. Burnsville, MN 55337
(800) 836-7432 www.Temp-Cool.com